

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
CHAPPAZ

Serial No. **Not Yet Assigned**

Filing Date: **Herewith**

For: **PROCESS AND DEVICE FOR
ESTIMATING THE IMPULSE
RESPONSE OF AN INFORMATION
TRANSMISSION CHANNEL, IN
PARTICULAR FOR A CELLULAR
MOBILE TELEPHONE**

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PRELIMINARY AMENDMENT

Director, U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

Prior to the calculation of fees and examination of
the present application, please enter the amendments and
remarks set out below.

In the Claims:

Please cancel Claims 1 to 10.

Please add new Claims 11 to 36.

11. A process for estimating an impulse response of
a transmission channel defined by a sender, a receiver, and
means of propagation extending therebetween, the process
comprising:

calculating a first estimate of the impulse response
of the transmission channel considered as a whole; and

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correcting the first estimate independently of information being transmitted based upon an impulse response of the sender and an impulse response of the receiver being known to obtain a corrected final estimate of the impulse response of the transmission channel.

12. A process according to Claim 11, wherein correcting the first estimate comprises calculating coefficients of the corrected final estimate by multiplying coefficients of the first estimate by a matrix whose coefficients are predetermined and representative of the impulse responses of the sender and of the receiver and are independent of the information transmitted.

13. A process according to Claim 11, wherein calculating the first estimate is performed using a blind estimate.

14. A process according to Claim 11, wherein calculating the first estimate is performed using a learned estimate.

15. A process according to Claim 11, wherein the calculating and correcting is performed by a digital signal processor.

16. A process according to Claim 11, wherein the calculating and correcting is performed via software.

17. A process according to Claim 11, wherein the calculating and correcting is performed by a cellular mobile telephone.

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18. A process for estimating an impulse response of a transmission channel defined by a sender, a receiver, and a propagation path extending therebetween, the process comprising:

calculating a first estimate of the impulse response of the transmission channel; and

correcting the first estimate independently of information being transmitted based upon an impulse response of the sender and an impulse response of the receiver being known to obtain a corrected final estimate of the impulse response of the transmission channel, with correcting the first estimate comprising calculating coefficients of the corrected final estimate by multiplying coefficients of the first estimate by a matrix whose coefficients are predetermined and representative of the impulse responses of the sender and of the receiver.

19. A process according to Claim 18, wherein the coefficients of the matrix are independent of the information transmitted.

20. A process according to Claim 18, wherein calculating the first estimate is performed using a blind estimate.

21. A process according to Claim 18, wherein calculating the first estimate is performed using a learned estimate.

22. A process according to Claim 18, wherein the calculating and correcting is performed by a digital signal processor.

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23. A process according to Claim 18, wherein the calculating and correcting is performed via software.

24. A process according to Claim 18, wherein the calculating and correcting is performed by a cellular mobile telephone.

25. A receiver comprising:

a front end portion for receiving information transmitted via a transmission channel defined by said front end portion, a sender and a propagation path extending therebetween; and

an impulse response estimation circuit comprising
a first estimation circuit connected to said front end portion for calculating a first estimate of an impulse response of the transmission channel, and

a second estimation circuit connected to said first estimation circuit for correcting the first estimate independently of information being transmitted via the transmission channel based upon an impulse response of the sender and an impulse response of said front end portion being known to obtain a corrected final estimate of the impulse response of the transmission channel.

26. A receiver according to Claim 25, wherein said second estimation circuit comprises:

a memory for storing a matrix whose coefficients are predetermined and representative of the impulse responses of the sender and said front end portion, and is independent of the information transmitted; and

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circuitry for multiplying coefficients of the first estimate by the matrix for obtaining coefficients of the final estimate.

27. A receiver according to Claim 25, wherein said first estimation circuit performs a blind estimate.

28. A receiver according to Claim 25, wherein said first estimation circuit performs a learned estimate.

29. A receiver according to Claim 25, wherein said first and second estimation circuits are defined within a digital signal processor.

30. A receiver according to Claim 25, wherein said front end and said first and second estimation circuits are defined within a cellular mobile telephone.

31. A receiver according to Claim 25, wherein the propagation path comprises at least one of free space and an electrical cable.

32. A computer-readable medium having computer-executable instructions for estimating an impulse response of a transmission channel defined by a sender, a receiver, and a propagation path extending therebetween, the computer-executable instructions comprising:

calculating a first estimate of the impulse response of the transmission channel; and

correcting the first estimate independently of information being transmitted based upon an impulse response of the sender and an impulse response of the receiver being

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known to obtain a corrected final estimate of the impulse response of the transmission channel.

33. A computer-readable medium according to Claim 32, wherein correcting the first estimate comprises calculating coefficients of the corrected final estimate by multiplying coefficients of the first estimate by a matrix whose coefficients are predetermined and representative of the impulse responses of the sender and of the receiver and are independent of the information transmitted.

34. A computer-readable medium according to Claim 32, wherein calculating the first estimate comprises performing a blind estimate.

35. A computer-readable medium according to Claim 32, wherein calculating the first estimate comprises performing a learned estimate.

36. A computer-readable medium according to Claim 32, wherein the calculating and correcting is performed by a cellular mobile telephone.

REMARKS

It is believed that all of the claims are patentable over the prior art. For better readability and the Examiner's convenience, the newly submitted claims differ from the translated counterpart claims which are being canceled. The newly submitted claims do not represent changes or amendments that narrow the claim scope for any reason related to the statutory requirements for patentability. Accordingly, after

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the Examiner completes a thorough examination and finds the claims patentable, a Notice of Allowance is respectfully requested in due course. Should the Examiner determine any minor informalities that need to be addressed, he is encouraged to contact the undersigned attorney at the telephone number below.

Respectfully submitted,



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